

Amendments to the Claims:

1. (Currently amended) A method for superplastically forming blanks to produce a first structural member having a predetermined configuration, the method comprising:

providing a first and second blank comprising titanium, wherein the first blank has and having a grain size of between 0.8 and 1.2 micron and the second blank has a grain size of greater than 2 microns;

heating each blank to within a diffusion bonding temperature range of each blank;
diffusion bonding the first blank to the second blank at a diffusion bonding temperature of less than 1450 °F;

heating the bonded blanks to within a superplastic forming temperature range of the blanks; and

superplastically forming the bonded blanks at a forming temperature of less than 1450 °F to produce the structural member having the predetermined configuration.

2. (Previously Presented) A method according to Claim 1 wherein said providing step comprises providing the blanks formed of Ti-6Al-4V.

3. (Cancelled)

4. (Cancelled)

5. (Original) A method according to Claim 1 wherein said superplastically forming step comprises forming less than about 0.001 inch alpha case oxide layer on each surface of the structural member.

6. (Original) A method according to Claim 1 further comprising pickling the structural member to remove alpha case oxide formed thereon during said superplastically forming step.

7. (Original) A method according to Claim 6 wherein said pickling step comprises subjecting the structural member to a pickling fluid and thereby removing material from surfaces of the structural member at a rate less than about 5×10^{-5} inch per minute.

8. (Original) A method according to Claim 6 wherein said pickling step comprises removing less than about 0.001 inch from each surface of the structural member.

9. (Original) A method according to Claim 6 wherein said superplastically forming step comprises forming the blanks to a thickness less than about 0.002 inch greater than a desired thickness of the structural member.

10. (Previously Presented) A method according to Claim 1 wherein said superplastically forming step comprises superplastically forming the structural member at a temperature between 1400 °F and 1450 °F.

11. (Previously Presented) A method according to Claim 1 wherein said superplastically forming step comprises superplastically forming the blanks at a strain rate of at least about 6×10^{-4} per second.

12. (Previously Presented) A method according to Claim 1 wherein said superplastically forming step comprises superplastically forming the blanks at a strain rate of at least about 1×10^{-3} per second.

Claims 13 – 15 (Cancelled)

16. (Currently amended) A method for superplastically forming blanks to produce a structural member having a predetermined configuration, the method comprising:

providing first and second blanks formed of Ti-6Al-4V and having a grain size of between 0.8 and 1.2 micron;

heating each blank to within a diffusion bonding temperature range of each blank;

diffusion bonding the first blank to the second blank at a diffusion bonding temperature of less than 1450 °F;

heating the bonded blanks to within a superplastic forming temperature range of the blanks;

superplastically forming the bonded blanks at a forming temperature of less than 1450 °F to produce the structural member having the predetermined configuration, thereby forming a layer of alpha case oxide of less than about 0.001 inch thickness on each surface of the structural member; and

pickling the structural member following superplastically forming the bonded blanks to remove the alpha case oxide layer.

17. (Previously Presented) A method according to Claim 16 wherein said providing step comprises providing the blanks having a grain size of about 1 micron.

18. (Original) A method according to Claim 16 wherein said pickling step comprises subjecting the structural member to a pickling fluid and thereby removing material from surfaces of the structural member at a rate less than about 5×10^{-5} inch per minute.

19. (Original) A method according to Claim 16 wherein said pickling step comprises removing less than about 0.001 inch from each surface of the structural member.

20. (Previously Presented) A method according to Claim 16 wherein said superplastically forming step comprises forming the blanks to a thickness less than about 0.002 inch greater than a desired thickness of the structural member.

21. (Original) A method according to Claim 16 wherein said superplastically forming step comprises superplastically forming the structural member at a temperature of about 1425 °F.

22. (Previously Presented) A method according to Claim 16 wherein said superplastically forming step comprises superplastically forming the blanks at a strain rate of at least about 6×10^{-4} per second.

23. (Previously Presented) A method according to Claim 16 wherein said superplastically forming step comprises superplastically forming the blanks at a strain rate of at least about 1×10^{-3} per second.

Claims 24 – 35 (Cancelled)

36. (Currently amended) A method for superplastically forming blanks to produce a structural member having a predetermined configuration, the method comprising:

providing first and second blanks ~~formed of Ti-6Al-4V~~ comprising titanium, wherein the first blank has and having a grain size of between about 0.8 and 1.2 micron, and wherein the second blank has a grain size of greater than 2 microns;

heating each blank to within a diffusion bonding temperature range of each blank;
diffusion bonding the first blank to the second blank at a diffusion bonding temperature of less than 1450 °F;

heating the bonded blanks to within a superplastic forming temperature range of the blanks; and

superplastically forming the bonded blanks at a forming temperature of less than 1450 °F and at a strain rate of at least about 6×10^{-4} per second to produce the structural member having the predetermined configuration, thereby forming a layer of alpha case oxide on each surface of the structural member; and

pickling the structural member following superplastically forming the bonded blanks to remove the alpha case oxide layer.

37. (Canceled)

38. (Currently amended) A method according to Claim 36, wherein pickling the structural member comprises ~~further comprising~~ subjecting the structural member to a pickling fluid and thereby removing material from surfaces of the structural member at a rate less than about 5×10^{-5} inch per minute.

39. (Previously Presented) A method according to Claim 38 wherein said subjecting step comprises removing less than about 0.001 inch from each surface of the structural member.

40. (Previously Presented) A method according to Claim 36 wherein said superplastically forming step comprises forming the blanks to a thickness less than about 0.002 inch greater than a desired thickness of the structural member.

41. (Previously Presented) A method according to Claim 36 wherein said superplastically forming step comprises superplastically forming the structural member at a temperature of about 1425 °F.

42. (Previously presented) A method according to Claim 36 wherein said superplastically forming step comprises superplastically forming the blanks at a strain rate of at least about 1×10^{-3} per second.

Claims 43 – 44 (Cancelled)

45. (New) A method according to Claim 1 wherein the second blank has a grain size of between 5 and 8 microns.

46. (New) A method according to Claim 36 wherein the second blank has a grain size of between 5 and 8 microns.